

REMARKS/ARGUMENTS

Claims 1-10 are now active in this application, new claims 9 and 10 having been added by this amendment. Claims 1 and 3 have been amended to specify that the carboxyl-containing chlorinated propylenic random copolymer is an isotactic polymer. This amendment is supported by the specification at page 19, lines 9-10 and page 20, lines 18-19, which recite the use of NOVATECH propylenic random copolymer available from Nippon Polychem Co. Ltd., when combined with the attached letter from Nippon Polychem (now called Nippon Polypro Co. Ltd.) stating that Novatech is a trademark of an isotactic polypropylene sold by their company. Claims 1 and 3 have also been amended to specify that the carboxyl-containing chlorinated propylenic isotactic random copolymer has a melting point of from 115 to 135°C as measured by DSC. This amendment is supported by the specification at page 6, last line. The claims have also been amended to overcome the formal objections made by the Examiner, for which the Examiner's suggestions have been largely adopted and are much appreciated. In some instances the Examiner's suggestion has been modified to accommodate other amendments being made or to make the claim read more clearly. New claims 9 and 10 specify the type of basic substance that can be used in claims 2 or 4, respectively. These claims are supported by the specification at the paragraph bridging pages 16 and 17. The remaining amendments are supported by the claims as originally filed. No new matter has been added by these amendments.

The claims have been objected to and stand rejected under 35 U.S.C. 112, second paragraph. These objections have been obviated by the present amendment and where not obviated are hereby respectfully traversed. In particular, Applicants have not changed the use of the term "basic substance", as it is believed that this term would be well understood by those of skill in the art to mean a substance that acts as a base. As the claims must be read in light of the specification and the specification discusses the "basic substance" at page 16 as a

way to neutralize the carboxyl group, thus interacting in a base-acid neutralization, it is quite clear that the substance merely needs to be basic in nature, not any particular base.

Accordingly, the rejection should be withdrawn.

The present invention relates to an aqueous dispersion comprising a carboxyl-containing chlorinated polypropylene isotactic random copolymer prepared using a metallocene catalyst, having specified levels of chlorine and carboxyl groups, and a specified molecular weight and melting point. Applicants have found that by using an isotactic random copolymer in the present invention (Trial Examples 1 and 2 and Examples 1-4 of the present specification), as compared to syndiotactic polypropylene (Trial Example 3 and Comparative Examples 1-2 of the present specification) or a propylene-ethylene copolymer prepared using a Ziegler-Natta catalyst (Trial Example 4 and Comparative Examples 3-4 of the present specification), one obtains a significantly better profile of physical properties including heat seal strength, adherence to various substrates, resistance to gasohol and warm water.

Claims 1-2 and 5-8 stand rejected under 35 U.S.C. 103 over Urata et al in view of Kimura et al. Urata et al disclose a binder resin comprising carboxyl group containing chlorinated polyolefin, which can be a polypropylene or a copolymer of propylene with an alpha-olefin (see column 2, line 53 to column 3, line 4). However, there is no discussion of the tacticity of the propylenic portion of the polymer, of the nature of the copolymer (random vs block vs. alternating) or of the importance of that tacticity or nature in obtaining the desired properties. Kimura et al does not overcome these deficiencies. Kimura discloses an aqueous dispersion of a carboxyl group-containing chlorinated polypropylene (NOT a propylenic random copolymer) combined with a carboxyl group-containing propylene-alpha-olefin copolymer (NOT chlorinated). However, there is no teaching that the use of a propylenic isotactic random copolymer as required by the present invention, would result in

the type of improved properties Applicants have shown. Applicants have shown in the examples of the present application, that the use of a carboxyl containing chlorinated propylenic **isotactic random copolymer** provides significantly improved performance across the physical property profile when the copolymer is used to prepare an aqueous dispersion used as a binder composition. Such improvements are nowhere suggested by the art cited by the Examiner and thus, even if the Examiner maintains that the references provide a *prima facie* case of obviousness, this is amply rebutted by the data within the specification (see pages 28-29 of the specification for a summary of the data, which is also reproduced below).

[Table 1]

	Degree of chlorination	Heat seal strength (g/15mm)	Primer test		
			Adherence	Gasohol resistance	Warm water resistance
Ex.1	20.5%	460	100/100	No abnormality	No abnormality 100/100
Ex.2	15.6%	550	100/100	No abnormality	No abnormality 100/100
Ex.3	20.7%	980	100/100	No abnormality	No abnormality 100/100
Ex.4	15.5%	1350	100/100	No abnormality	No abnormality 100/100
Comp.1	20.4%	190	70/100	Peeling off after 10 min	No abnormality 30/100
Comp.2	15.5%	180	75/100	Peeling off after 10 min	No abnormality 50/100
Comp.3	20.5%	220	100/100	Peeling off after 5 min	Some blisters 25/100
Comp.4	15.8%	240	100/100	Peeling off after 10 min	Some blisters 30/100

[Table 2]

	PP	PET	PC	ABS	6-PA	PVC	Wood flour/ PP (51/49) composite
Ex.1	100/100	100/100	100/100	100/100	100/100	100/100	100/100
Ex.2	100/100	100/100	100/100	100/100	100/100	100/100	100/100
Ex.3	100/100	100/100	100/100	100/100	100/100	100/100	100/100
Ex.4	100/100	100/100	100/100	100/100	100/100	100/100	100/100
Comp.1	75/100	70/100	70/100	90/100	70/100	80/100	80/100
Comp.2	85/100	60/100	30/100	90/100	30/100	75/100	70/100
Comp.3	90/100	95/100	80/100	95/100	100/100	90/100	90/100
Comp.4	80/100	50/100	50/100	75/100	80/100	60/100	70/100

Applicants have found that by using an isotactic random copolymer in the present invention (See Trial Examples 1 and 2 and Examples 1-4 of the present specification), as compared to a propylene-ethylene copolymer prepared using a Ziegler-Natta catalyst, similar to the propylene-ethylene copolymer disclosed by Urata et al (See Trial Example 4 and Comparative Examples 3-4 of the present specification), one obtains a significantly better profile of physical properties including heat seal strength, adherence to various substrates, resistance to gasohol and warm water. Accordingly, since the references do not suggest such improvements in performance upon using the type of polymer required in the present aqueous dispersion, the rejection should be withdrawn.

Claims 1-8 stand rejected under 35 U.S.C. 103 over Ueda et al in view of Kimura et al. Ueda et al disclose a binder resin composition that requires the use of carboxyl group-containing chlorinated syndiotactic polyolefin. However, the present invention requires the use of isotactic random propylenic copolymers, which cannot be suggested by the syndiotactic polyolefin of Ueda et al. Further, Kimura et al cannot overcome this deficiency of Ueda et al, since Kimura et al also does not suggest the use of a propylenic isotactic random copolymer. The only suggestion of isotactic by Kimura et al is the use of isotactic polypropylene, NOT an isotactic random propylenic copolymer. Since neither of the references suggest such a copolymer for use as the binder composition, the combination of references cannot suggest the present invention.

Further, as noted above in the reproduction of Tables 1 and 2 from the specification, Applicants have found that by using an isotactic random copolymer in the present invention (see Trial Examples 1 and 2 and Examples 1-4 of the present specification), as compared to a syndiotactic polypropylene as required by Ueda et al (see Trial Example 3 and Comparative Examples 1-2 of the present specification), one obtains a significantly better profile of physical properties including heat seal strength, adherence to various substrates, resistance to gasohol and warm water. Accordingly, since the references do not suggest such improvements in performance upon using the type of polymer required in the present aqueous dispersion, the rejection should be withdrawn.

Application No. 10/505,458  
Reply to Office Action of June 30, 2006

Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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2006年11月10日

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日本製紙ケミカル株式会社御中

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敬具

## 記

1. “ノバテック”は弊社の販売するアイソタクチックポリプロピレン樹脂の商標です。
2. メタロセン触媒を用いたポリプロピレンは2001年10月に販売を開始しており、商標名は“ウィンテック”です。
3. 販売開始当時の社名は「日本ポリケム株式会社」ですが、2003年にチッソ株式会社とのポリプロピレン事業統合により、現在の「日本ポリプロ株式会社」に名称を変更致しております。
4. 上記の販売開始以降に生産しました“ウィンテック”各グレードは、“ウィンテック”専用の紙袋にて荷造りし販売を行っておりますが、それ以前の生産品の一部は主たる用途が社内評価用であった事もあり、“ノバテック”と記載のされた紙袋に荷造りされたものもあります。
5. この度お問い合わせの“XK1159”は“ウィンテック”上市前に生産された名称であり、上市後は現在の“WFX4T”に名称変更しております。
6. これらの状況下、“ウィンテック”上市直後に限定し、“ノバテック”袋に荷造りされた“XK1159”を“WFX4T”と同一物として納入した事例がございます。
7. “XK1159”の名称での実績を調べましたところ、2002年の1月より6月の期間にて貴社への納入実績を確認致しました。  
本納入につきましては“ノバテック”袋での納入の可能性がございます。

以上

November 10, 2006

Nippon Polypro Co., LTD.

Osaka Branch

Messrs. Nippon Paper Chemical Industries Co. LTD.

The report on trademark of polypropylene by our company

Dear Sirs

We report as follows, concerning the subject matter

Truly yours

Description

1. "Novatech" is a trademark of isotactic polypropylene which is on sale by our company.
2. The sale of polypropylene using metallocene catalysts started on October of 2001 and the name of its trademark is "wintech".
3. The company name at the time of starting the sale is "Nippon Polychem Co., LTD", but the company name is changed to "Nippon Polypro Co., LTD." of the present, by merging of polypropylene business with Chisso Co. LTD.